WHAT IS CLAIMED IS:

1. A method for loading a solute into an erythrocytic cell, comprising: disposing an erythrocytic cell in a solution having a solute concentration of sufficient magnitude to produce hyperosmotic pressure on the cell, thereby transferring a solute from the solution into the cell.

2. The method of claim 1 wherein said solute is present in said solution in a concentration of between 700 and 1000 mM.

3. The method of claim 1, wherein said solute is a disaccharide.

4. The method of claim 3, wherein said disaccharide is trehalose.

5. The method of claim 1, wherein said solution further comprises a potassium salt.

6. The method of claim 5, wherein said potassium salt is potassium phosphate.

7. The method of claim 1, wherein said solution further comprises α-crystallin.

8. The method of claim 1, wherein said solution further comprises a strong reducing agent.

9. The method of claim 8, wherein said strong reducing agent is ascorbic acid.

10. The method of claim 1, wherein said solution comprises a disaccharide, α-crystallin, ascorbic acid, and a potassium salt.

11. A method of claim 1, further wherein the loading is conducted at a temperature of between 25 and 40° C.

12. A method of claim 11, further wherein the loading is conducted at a temperature of between 30 and 40° C.

13. A method of claim 11, further wherein the loading is conducted at a temperature of about 37° C.

14. An erythrocyte loaded with from 10 mM to 50 mM trehalose.

15. An erythrocyte of claim 11, further comprising ascorbic acid.

16. An erythrocyte of claim 11, further comprising α-crystallin.

17. A method for separating fragile or damaged cells from a population of erythrocytes, said method comprising

contacting said population with a first solution which is hyperosmotic with respect to a solute,

loading a solute into said erythrocytes,

removing said erythrocytes from said hyperosmotic solution,

contacting said erythrocytes with a second solution which is mildly hypoosmotic in comparison to said hyperosmotic solution, thereby lysing fragile or damaged cells, and

separating said fragile or damaged cells from said population.

18. A method of claim 14, wherein said separation is by centrifugation.

19. A method for freeze-drying erythrocytes comprising lowering the hematocrit of said erythrocytes to between 2 and 5%.

20. A method for freeze-drying erythrocytes, comprising drying said erythrocytes in the presence of liposomes.

21. A method of claim 18, wherein said liposomes are composed primarily of unsaturated lipids.

22. A method for freeze-drying erythrocytes, comprising freeze-drying said erythrocytes in the presence of 200-300 mOsm of potassium salts.

23. A method of claim 19, wherein said erythrocytes are present in a hematocrit of up to 15%.

24. A buffer for drying erythrocytes, said buffer comprising liposomes.

25. A buffer of claim 21, wherein said liposomes are composed primarily of unsaturated lipids.

26. A buffer for drying erythrocytes, said buffer comprising ascorbic acid.

27. A buffer for rehydrating dried erythrocytes, said buffer comprising methylene blue.

28. A buffer for rehydrating dried erythrocytes, said buffer comprising transition metal ions.

29. A buffer of claim 24, wherein said transition metal ions are selected from the group consisting of zinc, copper, magnesium, and nickel.

30. A solution for rehydrating dried erythrocytes, said solution comprising ascorbic acid.

31. A solution for rehydrating dried erythrocytes, said solution comprising methylene blue, ascorbic acid, and transition metal ions.

32. A method for rehydrating dried erythrocytes, said method comprising contacting said dried erythrocytes with a solution comprising methylene blue.

33. A method for rehydrating dried erythrocytes, said method comprising contacting said dried erythrocytes with a solution comprising transition metal ions.

34. A method for rehydrating dried erythrocytes, said method comprising contacting said dried erythrocytes with a solution comprising ascorbic acid.

35. A method for rehydrating dried erythrocytes, said method comprising contacting said dried erythrocytes with a solution comprising methylene blue, and transition metal ions.